IN THE CLAIMS

What is claimed is:

1   1.   A system for securely storing a data object, comprising:

2   a computerized owning node that owns the data object;

3   a plurality of computerized neighbor nodes, wherein said owning node and said neighbor

4   nodes are distinct and are collectively members of a network in which they have

5   peer-to-peer status; and

6   a plurality of possessing nodes that store the data object, wherein said plurality of

7   possessing nodes is a subset of said plurality of said neighbor nodes, thereby

8   securely storing the data object away from its said owning node.

1   2.   The system of claim 1, wherein a data piece derived from the data object is assigned to be

2   stored by each said possessing node, wherein each said data piece is all or part of the data object

3   and all said data pieces assemble into the whole of the data object.

1   3.   The system of claim 2, wherein multiple data copies derived from each said data piece

2   are stored by different said possessing nodes, thereby permitting comparison to determine if

3   security of any said data piece has been compromised.

1   4.   The system of claim 2, wherein multiple data shares derived from each said data piece

2   with a sharing algorithm are assigned to different said possessing nodes for storage, wherein said

3   data pieces may each be assembled from less than all of said multiple data from which they are

4   respectively derived.

1   5.   The system of claim 4, wherein:

2   one-thousand said neighbor nodes are assigned to said owning node to be said plurality of

3   neighbor nodes;

4   twenty said data shares derived from each said data piece are assigned to said possessing

5   nodes for storage; and

6   at least three said data shares must be assembled.

1 6. The system of claim 1, further comprising an indexing node to store information about
2 said neighbor nodes, wherein said indexing node is also a member of said network.

1 7. The system of claim 6, wherein said indexing node assigns said plurality of neighbor
2 nodes to said owning node.

1 8. The system of claim 7, wherein:
2 said neighbor nodes each log into said indexing node when joining said network; and
3 said information stored by said indexing node includes the current known availability of
4 respective said neighbor nodes.

1 9. The system of claim 8, wherein said plurality of possessing nodes assigned to store the
2 data object are chosen based on said information about availability of said neighbor nodes;

1 10. The system of claim 9, wherein said indexing node provides said information about
2 availability of said neighbor nodes to said owning node.

1 11. The system of claim 10, wherein said owning node chooses said plurality of possessing
2 nodes assigned to store the data object.

1 12. The system of claim 1, further comprising a backup node that is also a member of said
2 network, wherein said backup node stores a copy of the data object and is available as a server to
3 provide said data pieces as an alternate for retrieving the data object than said possessing nodes.

1 13. The system of claim 12, wherein:
2 said possessing nodes storing the data object each have a respective peer data piece
3 derived from the data object; and
4 said backup data piece is compared with said peer data piece.

1   14.   The system of claim 12, wherein:

2   said possessing nodes storing the data object each have a respective peer data piece

3   derived from the data object; and

4   said backup data piece is used in place of one said peer data piece.

1   15.   The system of claim 14, wherein said backup data piece is used in place of one said peer

2 data piece when any said peer data piece is deemed untrustworthy or unavailable.

1   16.   A method for securely storing a data object, the method comprising the steps of:

2   (a) constructing a network of computerized nodes, wherein one said node is an owning

3   node that owns the data object and a plurality of said nodes are neighbor nodes

4   that are distinct from said owning node;

5   (b) assigning a plurality of said nodes to be possessing nodes, wherein said plurality of

6   possessing nodes is a subset of said plurality of said neighbor nodes;

7   (c) storing the data object on said plurality of possessing nodes, thereby securely storing

8   the data object away from its said owning node.

1   17.   The method of claim 16, wherein said step (c) includes:

2   creating at least one data piece from the data object, wherein each said data piece is all or

3   part of the data object and all said data pieces assemble into the whole of the data

4   object; and

5   storing said data pieces on different said possessing nodes.

1   18.   The method of claim 17, wherein said step (c) includes:

2   making multiple data copies of each said data piece;

3   storing each said data copy on a different said possessing node; and

4   upon access to the data object, comparing said data copies to determine if security of any

5   said data piece has been compromised.

1   19.   The method of claim 17, wherein said step (c) further includes:

2   deriving multiple data shares from each said data piece with a sharing algorithm, wherein

3   said data pieces may each be assembled from less than all of said multiple data

4   from which they are respectively derived; and

5   storing said data shares on respective said possessing nodes.

1   20.   The method of claim 19, wherein said sharing algorithm is Shamir's secret sharing

2   algorithm one-thousand said neighbor nodes are assigned to said owning node to be said plurality

3   of neighbor nodes, twenty said data shares derived from each said data piece are assigned to said

4   possessing nodes for storage, and at least three said data shares must be assembled.

1   21.   The method of claim 16, further comprising:

2   (d) monitoring availability on said network of said neighbor nodes.

1   22.   The method of claim 21, wherein said step (a) further includes picking said plurality of

2   neighbor nodes with respect to said owning node based on said availability.

1   23.   The method of claim 21, wherein said step (c) further includes selecting said plurality of

2   possessing nodes from among said plurality of neighbor nodes based on said availability.

1   24.   The method of claim 23, wherein said owning node selects said plurality of possessing

2   nodes to store the data object.

1   25.   The method of claim 16, further comprising:

2   (d) providing a backup server on said network; and

3   (e) storing a backup copy of the data object on said backup server, thereby providing an

4   alternate means for retrieving the data object than said possessing nodes.